IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Date: October 22, 2007
Graham C. CHARTERS	Confirmation No.: 3102
Serial No.: 10/726,316	Group Art Unit: 2167
Filed: December 2, 2003	Examiner: Cheryl Renea LEWIS

For: SYSTEM, METHOD AND COMPUTER PROGRAM FOR DEFINING A DATA MAPPING BETWEEN TWO OR MORE DATA STRUCTURES

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Dear Sir or Madam:

Appellant submits this Appeal Brief pursuant to the Notice of Appeal filed in this case on May 22, 2007.

I. REAL PARTY IN INTEREST

The real party in interest is International Business Machines Corporation of Armonk, New York, by virtue of an assignment from the inventor(s) recorded in the U.S. Patent and Trademark Office on December 2, 2003, at Reel No. 014758 and Frame No. 0221.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals, interferences, or judicial proceedings known to Appellant, the Appellant's legal representative, or Assignee, which may be related to, directly affect, be directly affected by, or have a bearing on the decision by the Board of Patent Appeals and Interferences in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-42 have been cancelled. Claims 43-72 have been rejected. Appeal is taken from the rejection of claims 43-62.

IV. STATUS OF AMENDMENTS

No amendments were filed subsequent to the final Office action dated February 22, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

"The present invention relates to a method and system for defining a data mapping between two or more data structures" (pg. 6, lns. 2-3). In the present invention, possible data mapping definitions are suggested to a user based on previous data mapping definitions (*see, e.g.*, pg. 11, lns. 8-15). The user can then choose one of the possible data mapping definitions that are suggested to the user (*see, e.g.*, pg. 11, lns. 8-15). As a result, the task of defining data mappings is made easier (*see, e.g.*, pg. 11, lns. 20-22).

Independent claim 43 recites a method for defining data mappings between data elements in a first data structure and data elements in a second data structure. The method includes selecting a first data element in the first data structure for mapping (120). *See, e.g.*, pg. 6, lns. 10-1; figs. 3a-3b. The method also includes suggesting a first possible data mapping definition to a user based on a first previous data mapping definition (150), the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure. *See, e.g.*, pg. 7, lns. 6-12 and 18-20; pg. 8, lns. 2-3 and 5-7; pg. 9, lns. 8-9; figs. 3a and 3b. The method further includes mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response

to acceptance of the first possible data mapping definition by the user (155, 165), wherein the first previous data mapping definition defines a mapping from a data element in a third data structure to a data element in a fourth data structure, at least one of the third and fourth data structures being different from the first and second data structures. *See, e.g.*, pg. 7, lns. 12-14 and 20-22; pg. 8, lns. 3-5 and 7-8; pg. 9, lns. 9-12; figs. 3a-3b.

Independent claim 53 recites a computer program product comprising a computer readable medium, the computer readable medium including a computer readable program for defining data mappings between data elements in a first data structure and data elements in a second data structure. The computer readable program, when executed on a computer, causes the computer to select a first data element in the first data structure for mapping (120). *See, e.g.*, pg. 6, lns. 10-1; figs. 3a-3b. The computer readable program, when executed on the computer, also causes the computer to suggest a first possible data mapping definition to a user based on a first previous data mapping definition (150), the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure. *See, e.g.*, pg. 7, lns. 6-12 and 18-20; pg. 8, lns. 2-3 and 5-7; pg. 9, lns. 8-9; figs. 3a and 3b. The computer readable program, when executed on the computer, further causes the computer to map the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user (155, 165), wherein the first previous data mapping definition defines a mapping from a data element in a third data structure to a data element in a fourth data structure, at least one of the third and fourth data structures being different from the first and second data structures. *See, e.g.*, pg. 7, lns. 12-14 and 20-22; pg. 8, lns. 3-5 and 7-8; pg. 9, lns. 9-12; figs. 3a-3b.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Appellant requests review as to claims 43 and 53, and their rejection under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

2. Appellant requests review as to claims 43-62, and their rejection under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,757,739 to Tomm et al. (hereinafter "Tomm").

VII. ARGUMENTS

1. Claims 43-62 Are Directed to Statutory Subject Matter

Claim 43 recites a method for defining data mappings between data elements in a first data structure and data elements in a second data structure. The method includes selecting a first data element in the first data structure for mapping, suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure, and mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user, wherein the first previous data mapping definition defines a mapping from a data element in a third data structure to a data element in a fourth data structure, at least one of the third and fourth data structures being different from the first and second data structures.

In the Office action, the Examiner states:

> Claims 43, 53, and 63 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject. Claims 43, 53, and 63 are directed to defining and mapping a data definition from a first data element to a data element in a second data structure. The method, computer program product, and system of independent claims 43, 53, and 63 for mapping data definition of a data element to a data element of another data structure is at best a process and/or a series of steps implemented in software. Also, according to the specification on page 5 at line 11, the summary of the invention states that this invention is implemented by software.
>
> The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.
>
> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994).
>
> Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.").

(February 22, 2007 Office action, pgs. 2-3).

Although the Examiner asserts that what is recited in claims 43 and 53 "are clearly <u>not a series of steps or acts to be a process</u>", the Examiner also states earlier that the "method, computer program product, and system of independent claims 43, 53, and 63 for mapping data definition of a data element to a data element of another data structure <u>is at best a process</u> and/or a series of steps implemented in software" (emphasis added). It is unclear whether the Examiner is asserting that claims 43 and 53 merely recite a process or that claims 43 and 53 do not recite a process.

In addition, Appellant respectfully directs the Examiner to the revised MPEP § 2106, which sets forth the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility". There is no discussion in the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" about "descriptive material". Rather, under the revised MPEP § 2106, a "useful, concrete, tangible" result test is applied if the claimed invention falls within the judicially created exceptions of laws of nature, natural phenomenon, and abstract ideas.

It is clear that claims 43 and 53 are not directed to any laws of nature or natural phenomenon. Additionally, elements of claims 43 and 53 cannot be construed as abstract ideas because the Federal Circuit has clearly defined abstract ideas as "the manipulation of basic mathematical constructs" (*In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994)). Since claims 43 and 53 do not fall within the judicially created exceptions, claims 43 and 53 are within the four enumerated statutory categories of process, machines, manufactures and compositions of matter. Therefore, the "useful, concrete, tangible" result test is inapplicable.

Accordingly, based at least on the reasons above, Appellant respectfully submits that claims 43 and 53, and the claims that depend therefrom, are directed to statutory subject matter under 35 U.S.C. § 101.

2. Claims 43-62 Are Not Anticipated by Tomm

Claim 43 recites a method for defining data mappings between data elements in a first data structure and data elements in a second data structure. The method includes selecting a first data element in the first data structure for mapping, suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the

second data structure, and mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user, wherein the first previous data mapping definition defines a mapping from a data element in a third data structure to a data element in a fourth data structure, at least one of the third and fourth data structures being different from the first and second data structures.

Tomm does not disclose, teach, or suggest the claimed subject matter.

Tomm is directed to a "method and apparatus to automatically map between disparate message formats" (col. 1, lns. 62-63). In Tomm, "a target field in a target business object" is first selected (col. 1, lns. 64-65). "A concept associated with the target field is identified in a synonym dictionary. A set of synonyms associated with the concept is received. In the source document, fields are identified which contain synonyms that match the synonyms in the target field. For those source fields that match the target field, a match exists and the fields are said to be mapped" (col. 1, ln. 65 to col. 2, ln. 4).

(A) Tomm does not disclose, teach, or suggest "suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure"

Tomm does not disclose, teach, or suggest "suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure", as recited in claim 43.

In particular, the goal of Tomm is to "automatically map between disparate message formats" (Abstract) (emphasis added). Tomm states that "[t]he time and expense of using human experts to

perform or intervene in the mapping may be prohibitive, and grows exponentially as the number of trading partners increases, and is also very slow" (col. 1, lns. 55-58) (emphasis added). Hence, Tomm teaches against having any persons involved in the mapping process.

In contrast, claim 43 recites "suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure" (emphasis added). Thus, human intervention is required in claim 43.

Accordingly, Tomm not only fails to disclose, teach, or suggest "suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure", as recited in claim 43, but actually teaches away from the claim element.

(B) Tomm does not disclose, teach, or suggest "mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user"

Tomm does not disclose, teach, or suggest "mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user", as recited in claim 43.

As noted above, Tomm teaches against having any user intervention in creating mappings. Specifically, Tomm states that "[t]he automated method is faster and more accurate than the human-based alternative" (col. 5, lns. 41-42). In contrast, claim 43 recites "mapping the first data element in the first data structure to the first data element in the second data structure according to the

first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user" (emphasis added). Thus, in claim 43, mapping data elements according to the "first possible data mapping definition" requires user approval.

Accordingly, Tomm not only fails to disclose, teach, or suggest "mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user", as recited in claim 43, but actually teaches away from the claim element.

(C) Examiner has not established anticipation under 35 U.S.C. § 102

Anticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention. *See, e.g.*, Electro Med. Sys. S.A. v. Cooper Life Sciences, 34 F.3d 1048, 32 U.S.P.Q.2d 1017, 1019 (Fed. Cir. 1994). The Examiner has failed to show that the elements discussed in sections (A) and (B) above are disclosed in Tomm.

Therefore, based at least on the reasons above, Appellant respectfully submits that claim 43, and the claims that depend therefrom, are not anticipated by Tomm. Since claim 53 recites elements similar to those of claim 43, claim 53, and the claims that depend therefrom, are not anticipated by Tomm for at least the same reasons.

CONCLUSION

On the basis of the above remarks, Appellant respectfully submits that the final rejection should be reversed.

Respectfully submitted,
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Dated: October 22, 2007

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APPENDIX OF CLAIMS

Claims 1-42 (Cancelled)

43. (Previously Presented) A method for defining data mappings between data elements in a first data structure and data elements in a second data structure, the method comprising:

selecting a first data element in the first data structure for mapping;

suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure; and

mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user,

wherein the first previous data mapping definition defines a mapping from a data element in a third data structure to a data element in a fourth data structure, at least one of the third and fourth data structures being different from the first and second data structures.

44. (Previously Presented) The method of claim 43, wherein a data structure is a message and a data element in the data structure is a field in the message.

45. (Previously Presented) The method of claim 44, wherein the first previous data mapping definition comprises a message field to message field definition or a message name to message name definition.

46. (Previously Presented) The method of claim 43, wherein the first previous data mapping definition is a user defined data mapping definition.

47. (Previously Presented) The method of claim 43, wherein the first data structure is part of a first set of data structures and the second data structure is part of a second set of data structures and wherein at least one of the third and fourth data structures is part of the first set of data structures or part of the second set of data structures.

48. (Previously Presented) The method of claim 43, further comprising:

mapping the first data element in the first data structure to a second data element in the second data structure according to a data mapping definition defined by the user in response to rejection of the first possible data mapping definition by the user; and

storing the data mapping definition defined by the user for future use.

49. (Previously Presented) The method of claim 43, further comprising:

suggesting a second possible data mapping definition based on a second previous data mapping definition, the second previous data mapping definition defining a mapping from a data element in a fifth data structure to a data element in a sixth data structure; and

prioritizing the first possible data mapping definition and the second possible data mapping definition based on a predefined rule.

50. (Previously Presented) The method of claim 49, wherein the predefined rule specifies the first possible data mapping definition is ranked higher than the second possible data mapping definition when each of the third and fourth data structures is part of a first data structure set containing the first

data structure or is part of a second data structure set containing the second data structure and when at least one of the fifth and sixth data structures is not part of the first data structure set and is not part of the second data structure set.

51. (Previously Presented) The method of claim 49, wherein the predefined rule specifies the first possible data mapping definition is ranked higher than the second possible data mapping definition when at least one of the third and fourth data structures is part of a first data structure set containing the first data structure or is part of a second data structure set containing the second data structure and when none of the fifth and sixth data structures are part of the first data structure set or part of the second data structure set.

52. (Previously Presented) The method of claim 43, wherein the first possible data mapping definition is based on a reverse of the first previous data mapping definition.

53. (Previously Presented) A computer program product comprising a computer readable medium, the computer readable medium including a computer readable program for defining data mappings between data elements in a first data structure and data elements in a second data structure, wherein the computer readable program when executed on a computer causes the computer to:

select a first data element in the first data structure for mapping;

suggest a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure; and

map the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user,

wherein the first previous data mapping definition defines a mapping from a data element in a third data structure to a data element in a fourth data structure, at least one of the third and fourth data structures being different from the first and second data structures.

54. (Previously Presented) The computer program product of claim 53, wherein a data structure is a message and a data element in the data structure is a field in the message.

55. (Previously Presented) The computer program product of claim 54, wherein the first previous data mapping definition comprises a message field to message field definition or a message name to message name definition.

56. (Previously Presented) The computer program product of claim 53, wherein the first previous data mapping definition is a user defined data mapping definition.

57. (Previously Presented) The computer program product of claim 53, wherein the first data structure is part of a first set of data structures and the second data structure is part of a second set of data structures and wherein at least one of the third and fourth data structures is part of the first set of data structures or part of the second set of data structures.

58. (Previously Presented) The computer program product of claim 53, wherein the computer readable program when executed on the computer further causes the computer to:

map the first data element in the first data structure to a second data element in the second data structure according to a data mapping definition defined by the user in response to rejection of the first possible data mapping definition by the user; and

store the data mapping definition defined by the user for future use.

59. (Previously Presented) The computer program product of claim 53, wherein the computer readable program when executed on the computer further causes the computer to:

suggest a second possible data mapping definition based on a second previous data mapping definition, the second previous data mapping definition defining a mapping from a data element in a fifth data structure to a data element in a sixth data structure; and

prioritize the first possible data mapping definition and the second possible data mapping definition based on a predefined rule.

60. (Previously Presented) The computer program product of claim 59, wherein the predefined rule specifies the first possible data mapping definition is ranked higher than the second possible data mapping definition when each of the third and fourth data structures is part of a first data structure set containing the first data structure or is part of a second data structure set containing the second data structure and when at least one of the fifth and sixth data structures is not part of the first data structure set and is not part of the second data structure set.

61. (Previously Presented) The computer program product of claim 59, wherein the predefined rule specifies the first possible data mapping definition is ranked higher than the second possible data

mapping definition when at least one of the third and fourth data structures is part of a first data structure set containing the first data structure or is part of a second data structure set containing the second data structure and when none of the fifth and sixth data structures are part of the first data structure set or part of the second data structure set.

62. (Previously Presented) The computer program product of claim 53, wherein the first possible data mapping definition is based on a reverse of the first previous data mapping definition.

63. (Previously Presented) A system for defining data mappings between data elements in a first data structure and data elements in a second data structure, the system comprising:

means for selecting a first data element in the first data structure for mapping;

means for suggesting a first possible data mapping definition to a user based on a first previous data mapping definition, the first possible data mapping definition defining a mapping from the first data element in the first data structure to a first data element in the second data structure; and

means for mapping the first data element in the first data structure to the first data element in the second data structure according to the first possible data mapping definition in response to acceptance of the first possible data mapping definition by the user,

wherein the first previous data mapping definition defines a mapping from a data element in a third data structure to a data element in a fourth data structure, at least one of the third and fourth data structures being different from the first and second data structures.

64. (Previously Presented) The system of claim 63, wherein a data structure is a message and a data element in the data structure is a field in the message.

65. (Previously Presented) The system of claim 64, wherein the first previous data mapping definition comprises a message field to message field definition or a message name to message name definition.

66. (Previously Presented) The system of claim 63, wherein the first previous data mapping definition is a user defined data mapping definition.

67. (Previously Presented) The system of claim 63, wherein the first data structure is part of a first set of data structures and the second data structure is part of a second set of data structures and wherein at least one of the third and fourth data structures is part of the first set of data structures or part of the second set of data structures.

68. (Previously Presented) The system of claim 63, further comprising:

means for mapping the first data element in the first data structure to a second data element in the second data structure according to a data mapping definition defined by the user in response to rejection of the first possible data mapping definition by the user; and

means for storing the data mapping definition defined by the user for future use.

69. (Previously Presented) The system of claim 63, further comprising:

means for suggesting a second possible data mapping definition based on a second previous data mapping definition, the second previous data mapping definition defining a mapping from a data element in a fifth data structure to a data element in a sixth data structure; and

means for prioritizing the first possible data mapping definition and the second possible data mapping definition based on a predefined rule.

70. (Previously Presented) The system of claim 69, wherein the predefined rule specifies the first possible data mapping definition is ranked higher than the second possible data mapping definition when each of the third and fourth data structures is part of a first data structure set containing the first data structure or is part of a second data structure set containing the second data structure and when at least one of the fifth and sixth data structures is not part of the first data structure set and is not part of the second data structure set.

71. (Previously Presented) The system of claim 69, wherein the predefined rule specifies the first possible data mapping definition is ranked higher than the second possible data mapping definition when at least one of the third and fourth data structures is part of a first data structure set containing the first data structure or is part of a second data structure set containing the second data structure and when none of the fifth and sixth data structures are part of the first data structure set or part of the second data structure set.

72. (Previously Presented) The system of claim 63, wherein the first possible data mapping definition is based on a reverse of the first previous data mapping definition.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None